There there is adequate provision for technical training, secondary and higher training for every child who shows any special gift for taking advantage of it, and I consider that this fact is a greater menace to our trade than any arrangements of tariffs."

AT Cornell University Assistant Professors O. A. Johnson and M. F. Barrus have been promoted to full professorships in the department of entomology and the extension department of plant pathology, respectively.

AT Hamilton College Professor Nelson Clark Dale, assistant professor of geology at Princeton University, will succeed Professor W. J. Miller, who goes to Smith College.

MR. C. G. DARWIN, eldest son of the late Sir George Darwin, has been appointed mathematical lecturer at Christ's College, Cambridge.

DISCUSSION AND CORRESPONDENCE

TWO UNDESCRIBED SPECIMENS OF CASTOROIDES OHIOENSIS FOSTER FROM MICHIGAN

THERE are two specimens of *Castoroides ohioensis* in the collection of the museum of geology, University of Michigan, that were found in the state and have not been recorded. One of these was discovered near Owosso, Shiawassee County, in December, 1892, by A. G. Williams. It is represented by the base and upper part of the right mandible with the incisor and all of the molar teeth in position, the base of the left mandible, and the left incisor tooth. The incisors are well preserved and show the longitudinal striæ and cutting edge, but the tip and base of each are broken. The row of molar teeth is 75 mm. long.

The second specimen, a skull without the mandibular bones, was exhumed in a tamarack swamp in Pittsfield township, Washtenaw county, by J. B. Steere, in 1902. It was lying on a bed of gravelly marl and beneath three feet of peaty soil. The skull is hard, of a rich dark brown color, and is little damaged. The left zygomatic arch is broken, and the teeth, with the exception of the last molar on the left

side and the right incisor tooth, are missing. Nearly the full length of the right incisor is represented, the only damage to the tooth being an injury to the outer surface and the loss of a few millimeters from the base. The double nature of the internal nasal orifices is well shown. The measurements are as follows:

	Mm.
Length of skull from occipital angle to forward end of nasals	280
Length of skull from occipital angle to forward end of maxillaries	293
Width of skull across occiput	168
Width of skull across zygomatic arches.	230
Height of skull at occiput	68
Height of skull at last molars	98
Length of nasals	116
Greatest dimensions of zygomatic arch..	67 × 115
Width of occipital foramen	36
Length of molar tooth row	73

The writer is indebted to Professor E. C. Case, of the department of geology, University of Michigan, for permission to publish these records.

NORMAN A. WOOD

MUSEUM OF ZOOLOGY,
UNIVERSITY OF MICHIGAN

SCIENTIFIC BOOKS

Outlines of Chordate Development. By WM. E. KELLICOTT. New York: Henry Holt & Co. 1913.

In this volume Professor Kellicott endeavors to give a compact though comprehensive account of the development of the Chordates, such as will be suitable for the student of general embryology. For this purpose the frog is taken as representing the type, or rather, one should say, the mean, of chordate development, and a full and connected account is given of its early development and organogeny. This account is, however, preceded by an excellent statement of the embryology of *Amphioxus,* the author believing that whether or not this represents a truly primitive type of development, " it affords, in simple diagrammatic style, the essentials of early Chordate development," while its specialized later stages " may serve to put the student upon his guard

against a too exact phylogenetic interpreta-
tion of embryological facts." While admit-
ting the correctness of the first of these state-
ments, from the point of view of the student
seeking an outline of the principles of Chor-
date development one may question the peda-
gogical propriety of adding a number of more
or less irrelevant facts for the purpose of en-
forcing a conclusion which may be deduced
with even greater clearness from the more per-
tinent embryological phenomena of the higher
chordates.

Following the account of the frog, the early
development and organogeny of the chick is
considered, and the book ends with a chapter
on the early development of the mammalia,
special attention being devoted to the devel-
opment of their embryonic membranes and to
that of the external form of the human fetus.
It is unfortunate for the continuity of the
descriptions that no mention is made of the
early processes of development of the Reptilia,
since these in several particulars afford a much
clearer transition to the specialized mam-
malian conditions than do the similar stages
of the chick. The account of the later stages
of *Amphioxus* might well have been replaced
by a description of the early stages of reptilian
development.

But, on the whole, Professor Kellicott's book
is an excellent one, both in its conception and
execution. The descriptions are clear and
without redundancy and are illustrated by
numerous well chosen illustrations. Extensive
bibliographic lists are appended to the various
sections and there is an excellent index.

J. P. McM.

Chemical Technology and Analysis of Oils,
Fats and Waxes. By Dr. J. Lewkowitsch.
In three volumes. 5th edition. Volume I.
Macmillan Company. 1913. $6.50.

This volume has increased from 542 to 668
pages: the chapters on the Constituents and
on the Examination of the Mixed Fatty Acids
being increased by nearly one third. In view
of the encyclopedic character of the book, one
is surprised to find no mention of the abso-
lute viscosimeter; of Dunlap's excellent

method of purifying alcohol for alcoholic
potash; of T. W. Richards' apparatus for dis-
tilling in vacuo by electricity, all of which
are admirably adapted for work with fats and
oils. The information regarding the Saybolt
viscosimeter, too, is not the latest, although
perhaps the latest published.

The reviewer regards the treatment of the
subjects as most thorough and eminently
satisfactory. It is wisely critical, showing
evidence of investigation done under the
doctor's own eyes. It is approached by noth-
ing in any language, as is attested by the fact
of its translation into French and rewriting in
German. It is invaluable to every one having
to do with fats, oils and waxes.

It will be noted with deep regret by all in
this branch that the appearance of the book in
this country closely coincided with the death
of its author.

A. H. Gill

SCIENTIFIC JOURNALS AND ARTICLES

The April number (Vol. 15, No. 2) of the
*Transactions of the American Mathematical
Society* contains the following papers:

Maurice Fréchet: "Sur la notion de différen-
tielle d'une fonction de ligne."

J. H. M. Wedderburn: "A type of primitive
algebra."

C. T. Sullivan: "Properties of surfaces whose
asymptotic curves belong to linear complexes."

E. W. Chittenden: "Relatively uniform converg-
ence of sequences of functions."

H. S. Vandiver: "Note on Fermat's last
theorem."

E. R. Hedrick and Louis Ingold: "A set of
axioms for line geometry."

G. C. Evans: "The Cauchy problem for integro-
differential equations."

The March number (Vol. 20, No. 6) of the
*Bulletin of the American Mathematical Soci-
ety* contains: Report of the twentieth annual
meeting of the society, by F. N. Cole; Report
of the winter meeting of the society at Chi-
cago, by H. E. Slaught; "Shorter Notices";
Zoretti's Leçons sur le Prolongement analyti-
que and Scheffers's Serret's Lehrbuch der
Differential- und Integralrechnung, by Frank